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INTRODUCTION

In accordance with the City Auditor's 1996-97 Audit Workplan, we audited the Department of Public Works Engineering and Inspection Costs. We conducted this audit in accordance with generally accepted government auditing standards and limited our work to those areas specified in the Scope and Methodology section of this report.

The City Auditor's Office thanks the following City organizations and staff who gave their time, information, and cooperation for this audit -

☐ The Department of Public Works;

- Management and Administration Division;
 - Fiscal and Central Files sections;
- Architectural Engineering and Design and Construction Divisions;
 - Division, Section, and Project Managers, and Staff;

☐ The Finance Department; and

☐ The City Manager's Budget Office.

SCOPE AND METHODOLOGY

This report addresses the Department of Public Works (DPW) Engineering and Inspection (E&I) costs charged to capital projects. The purpose of our audit was to:

- determine whether capital project budgets are adequately estimated, monitored, and controlled;
- ascertain whether capital project costs are accounted for in an accurate and timely manner;
- verify that charges to capital projects are adequately monitored;
- assess whether problems and exceptions with capital project schedules and budgets are identified and reported;
- determine how department overhead costs are allocated to capital projects; and
- determine what actions are taken to control department overhead costs.

Our methodology included interviews with City personnel in the DPW's Management and Administration, Architectural Engineering, and Design and Construction Divisions and the City's Budget Office and Finance Department. In addition, we

- reviewed relevant articles and professional publications;
- reviewed written policies and procedures;
- surveyed other jurisdictions;
- obtained and reviewed management reports and budget documents;
- selected a judgmental sample of capital projects;
- acquired and examined project file documents for projects in the sample;
- accessed the City's Financial Management System (FMS) to compile total DPW charges to projects from inception to completion;
- examined the DPW's internal cost accounting system records; and
- monitored the implementation of the DPW's computerized timecard system.

We performed limited testing to determine the accuracy and reliability of information in the various computer reports we used during the audit. We did not review the general and specific application controls for the computer systems used in compiling the various computer reports we reviewed.

It should be noted that none of the capital projects in our sample were fee-based development or assessment district projects. Our review included only capital projects related to public works.

BACKGROUND

Department Mission

The mission of the Department of Public Works is,

. . . to provide services to customers and residents in a timely and equitable manner. Services provided to our community include the ability to: plan, design and construct capital improvements which support public infrastructure, new development and other City departments, and the Redevelopment Agency; provide a regulatory compliance for transportation planning, storm and sanitary projects; establish and ensure engineering standards for private and public development; master plan public infrastructure, facilities and roadway networks; acquire, manage and dispose of real property interests; promote, plan, budget and implement the acquisition, development and protection of parks, recreational facilities and open space. These core elements reflect the Department's ongoing commitment to preserving and enhancing a high quality of life in San Jose.

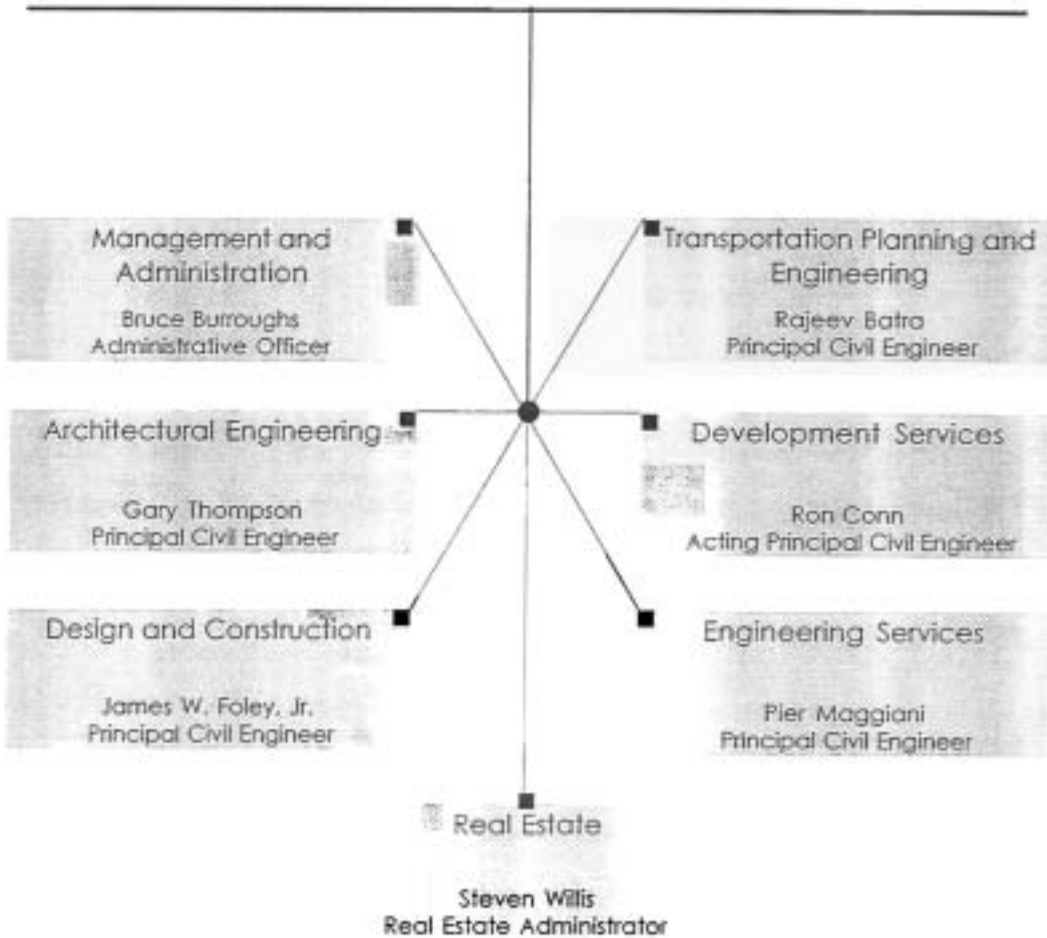
Department Organization

The Department of Public Works (DPW) is composed of seven divisions, namely, Management and Administration, Architectural Engineering, Engineering Services, Transportation, Design and Construction, Development Services, and Real Estate. The DPW coordinates with other City departments to accomplish the City's Capital Improvement Program. Chart 1 shows the organization of the department as of January 1997.



PUBLIC WORKS

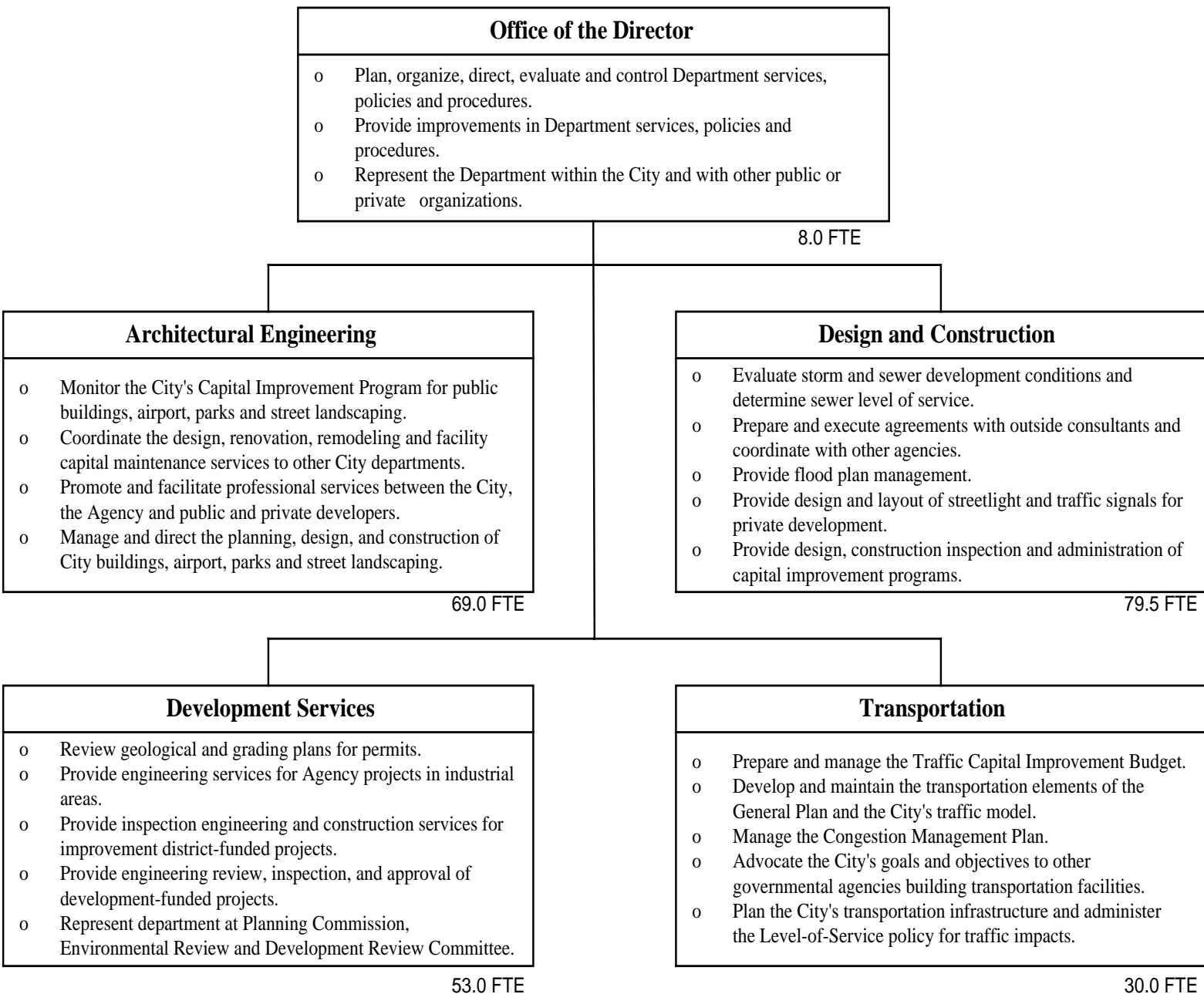
Ralph A. Qualls, Jr., Director



All DPW divisions receive some level of capital funding. However, five divisions have primary responsibility for the City's Capital Program. These divisions comprise the Capital Project Group. The *1996-97 Organization and Functions Manual* presents the divisions and their respective roles in accomplishing the City's Capital Improvement Program as follows:

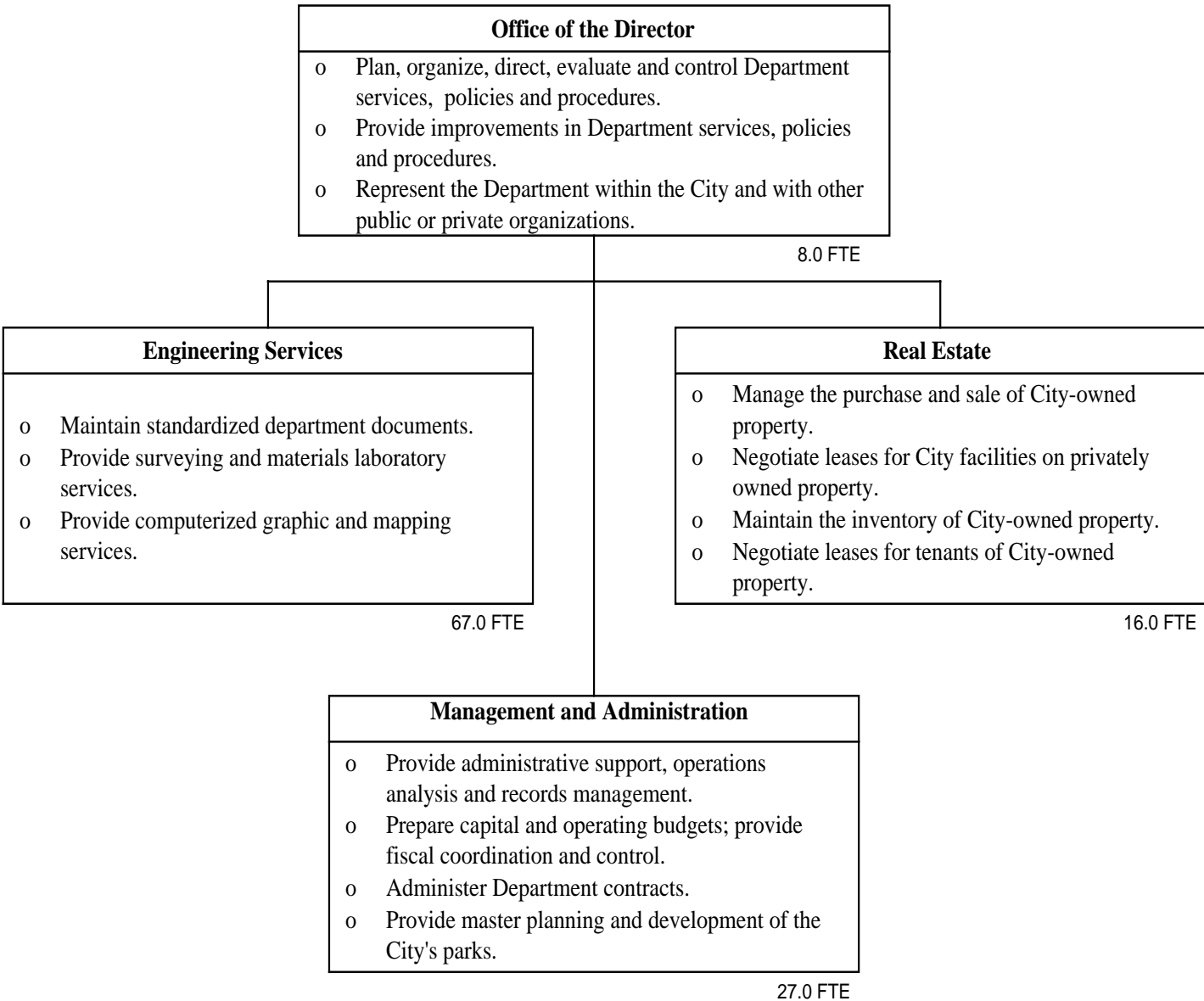
CHART II

DEPARTMENT OF PUBLIC WORKS **MAIN DIVISIONS - CAPITAL PROJECTS GROUP** **(AS OF JULY 1996)**



In addition, the *1996-97 Organization and Functions Manual* also lists four main divisions in the Business Services Group. The divisions and their functions related to the Capital Improvement Program are:

CHART III
DEPARTMENT OF PUBLIC WORKS
MAIN DIVISIONS – BUSINESS SERVICES GROUP
(AS OF JULY 1996)



Department Budget

The 1996-97 Adopted Operating Budget contains the DPW's budget summary for 1996-97. Table I presents the DPW's 1996-97 budget.

TABLE I

DEPARTMENT OF PUBLIC WORKS 1996-97 BUDGET SUMMARY

<u>Department Budget Summary</u>	<u>Adopted Budget</u>
Program	
Management and Administration	\$2,499,184
Transportation	2,244,949
Architectural Engineering	5,013,420
Development Services	3,846,400
Design and Construction	5,706,629
Engineering Services	4,766,207
Real Estate	1,349,735
Total	<u>\$25,426,524</u>
Category	
Personal Services	
Salaries/Benefits	\$24,276,578
Overtime	57,066
Subtotal	\$24,333,644
Non-personal	\$1,092,380
Equipment	500
Subtotal	<u>\$1,092,880</u>
Total	<u>\$25,426,524</u>
Fund	
General Fund	\$6,659,062
Storm Drain	149,174
Sewer Services & Use Charge	1,074,446
Capital Funds	17,543,842
Total	<u>\$25,426,524</u>

The Current Capital Budgeting Process

The City Council, through the annual capital budget process, appropriates capital funds to individual capital projects. These funds come from a variety of revenue sources including:

Construction/Conveyance taxes, airport fees, sewer connection fees, sewer service and use charges, storm drainage fees, gasoline taxes, parking revenues, and grant revenues. The City accounts for these revenues separately in various funds and uses these funds for a variety of purposes as specified in the Municipal Code. For budgeting purposes, these funds are grouped into the following program areas:

- Airport
- Communications
- Developer Assisted Projects
- Fire
- Library
- Municipal Improvements
- Off-Street Parking
- Parks
- Sanitary Sewers
- Service Yards
- Storm Drainage
- Traffic
- Water Pollution Control
- Water Utility System

The City of San Jose's (City) capital budgeting process is resource-driven in that the Annual Capital Budget (capital budget) and the Five-Year Capital Improvement Program (CIP) conform to the amount of funding the City expects to receive. Annually, the City estimates the amount of revenues anticipated for capital projects and allocates those revenues to various capital projects.

The City Council annually appropriates revenues to fund individual capital projects. The appropriated funds pay for the cost of construction, including contract change orders and contracted design or inspection services. In addition, these funds pay for DPW staff costs to design, engineer, and inspect capital projects as well as other services necessary to accomplish the City's Capital Improvement Program. Furthermore, capital funds pay for departmental

overhead, Citywide overhead, and other miscellaneous costs associated with capital projects.

Finally, the City charges other capially-funded departments' costs to capital project appropriations.

Engineering And Inspection Costs

The cost for the DPW to engineer and inspect capital projects has concerned the administration and the City Council for many years. An October 1983 memorandum from the Director of Public Works to the City Manager stated:

The term engineering and inspection (E&I) is often misunderstood and misinterpreted since it has been an accounting method to accumulate any project costs which were not either construction cost or land acquisition cost. This "E&I" number is then often compared directly to the "design" fee which a consultant will charge to provide plans and specifications for bidding purposes. The "design" fee and the City's E&I fee are different and cannot be compared.

According to DPW Administration, E&I is an outmoded or outdated term. DPW activities to bid, award, design, construct, inspect, and accept projects should more properly be referred to as "Design and Construction Management" as there are many more aspects of the work than just engineering (design) and inspection. The 1983 memorandum identified 11 functional categories comprised of almost 100 distinct capital project activities the DPW performed in addition to "design." As a result, the DPW maintained that consultant design fees and DPW E&I costs or fees were not comparable. According to current DPW managers this situation is unchanged.

The October 1983 memorandum also focused on the shortcomings of the City's financial system regarding accounting for capital project costs at the department level. The memorandum continued

Most of our projects are active for several fiscal years and often in more than one fund. Thus the G.A.S. [General Accounting System] does not accurately capture the costs.

In 1989, the City's Financial Management System (FMS) replaced the G.A.S.

However, the FMS was also designed to monitor costs by fiscal year and fund so capital project and task cost information regarding DPW charges to capital projects remains difficult to extract and compile. In the early 1980s, the DPW implemented an internal cost accounting system called PAC II.

It should be noted that prior to the early 1990s, the DPW used the common term "Engineering and Inspection" (E&I) when estimating staff costs to work on capital projects. As stated above, DPW staff perform capital functions in addition to designing, engineering, and inspecting projects. As a result, the DPW began describing their services as "Design and Construction Management." Henceforth in this audit report, the term E&I will be employed but will encompass all DPW activities necessary to accomplish the City's Capital Improvement Program.

Major Accomplishments Relating To The Department of Public Works Engineering and Inspection Costs

In Appendix B, DPW Administration informs us of its accomplishments related to monitoring and controlling the DPW's E&I costs. According to DPW Administration they have improved management capabilities by:

- improving revenue projection models;
- reengineering tasks to accelerate service delivery and reduce costs;
- implementing an automated timekeeping system;
- using budget-off-the-top procedures to match staffing needs to annually projected workload and fund sources;
- adjusting the level of staffing to establish a base of approximately 350 full-time permanent authorized positions;
- relying more on contracting out design efforts;

- filling positions on a temporary basis;
- initiating a pilot program for a Capital Project Database System; and
- refining and expanding the project management monitoring process.

FINDING I

THE CITY SHOULD MODIFY HOW IT BUDGETS AND ACCOUNTS FOR DEPARTMENT OF PUBLIC WORKS COSTS CHARGED TO CAPITAL PROJECTS

The City Council, through the annual budget process, appropriates capital funds to individual projects. The appropriation pays for all project costs including construction, land, Department of Public Works (DPW) staff costs, and associated overhead costs. The City then accounts for these costs by capital project. The primary purpose of appropriating and accounting for capital funds in this manner is accountability and budgetary control. Our review, however, found that the Capital Project accounting and budgeting process does not provide the purported level of accountability and budgetary control. Specifically, we found the following:

- The DPW staff time charged to individual capital projects does not accurately reflect the amount of DPW staff time actually spent;
- The DPW adjusts capital project accounting records to avoid exceeding capital project budgets;
- The DPW uses funds from other appropriations to pay for capital projects which have exceeded their budget; and
- The DPW charges unbudgeted operating expenses to capital projects.

In our opinion, a different budgeting method could improve accountability and budgetary control of capital projects and reduce the amount of time the DPW spends on non-value added activities. Specifically, if a budget technique termed "budget-off-the-top" was used to fund DPW's costs charged to capital projects, the following benefits should be realized:

- A clearer picture of how the City's capital funds are used would be provided;
- Cost reporting would be more accurate;
- DPW's costs and the cost of construction would be segregated; and
- More flexibility for DPW staff to complete projects would be provided.

Budgeting For The DPW's Operating Costs

The DPW's funding comes from various capital funding sources and the General Fund. The DPW's operating budget receives approximately 70 percent of its overall funding from appropriations to capital projects; the General Fund pays for most of the remaining 30 percent of the DPW's costs. However, most of the General Fund's support for the DPW is for reimbursable activities such as developer projects. Therefore, General Fund support for DPW costs associated with the City's Capital Program is minimal.

Over the last five years, the level of General Fund support for the DPW's budget has decreased while capital funds have assumed a much larger share. To analyze this shift, we reviewed funding sources for the DPW's operating expenses over the past 10 years. Specifically, we analyzed the percentage of General Fund and capital funds' contributions allocated to balance the DPW's operating budget from 1984-1985 to 1996-97. Table II shows the results.

TABLE II

CHANGE IN DPW FUNDING FROM 1984-85 TO 1996-97
(IN MILLIONS)

	ACTUALS												ADOPTED
	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97
DPW Authorized Positions	286	304	304	339.3	339.5	373.5	415.5	424.5	416.5	363.5	353.4	351.5	349.5
DPW Operating Budget	\$13.45	\$15.91	\$16.82	\$17.95	\$18.97	\$21.70	\$23.31	\$27.31	\$27.02	\$24.82	\$24.46	\$25.58	\$25.43
Budget By Fund Source													
General Fund	\$6.50	\$6.87	\$7.06	\$6.83	\$6.49	\$7.45	\$6.28	\$5.98	\$6.31	\$5.91	\$6.13	\$6.97	\$6.66
Low/Moderate Housing Fund										\$0.07			
Storm Drain								\$0.80	\$0.72	\$0.08	\$0.18	\$0.02	\$0.15
Sewer Services & Use Charge		\$0.52			\$0.64	\$0.82	\$0.95	\$0.98	\$1.01	\$0.86	\$0.84	\$0.69	\$1.07
Capital funds*	\$6.95	\$8.53	\$9.75	\$11.12	\$11.85	\$13.43	\$16.07	\$19.56	\$18.98	\$17.90	\$17.31	\$17.91	\$17.54
TOTAL	\$13.45	\$15.91	\$16.82	\$17.95	\$18.97	\$21.70	\$23.31	\$27.31	\$27.02	\$24.82	\$24.46	\$25.58	\$25.43
% From General Fund	48%	46%	42%	38%	38%	38%	31%	28%	30%	28%	29%	30%	31%
% From capital funds*	52%	54%	58%	62%	62%	62%	69%	72%	70%	72%	71%	70%	69%

*Governmental (excluding General Fund) and propriety fund types financing particular operating or capital functions of the City.

Note: Numbers may not add due to rounding.

As Table II demonstrates, from 1984-85 to 1991-92 capital funds absorbed an increasingly larger share of the DPW's operating budget. In 1984-85, the General Fund and capital funds supported the cost of the DPW nearly equally. By 1991-92, the DPW's operating budget had moved to 28 percent General Fund and 72 percent capital funds. Table II also shows General Fund support for DPW's operating budget in terms of total dollars is less in 1996-97 than in 1985-86 when the shift from the General Fund to capital funds began.

All DPW General Fund positions are fully funded. That is, each DPW's full-time equivalent (FTE), or fraction thereof, is budgeted to provide funding for one year's salary and benefits. On the capital side, capital-funded positions do not have an actual budgeted amount to pay for the cost of each position. Rather, funding for capital-funded positions comes

through the DPW's staff hours charged to projects and the resultant overhead costs. The DPW's charges accrue on a biweekly basis as staff charge their time to specific capital projects in the capital budget.

The cost of the DPW's staff time charged to capital projects equals labor costs which include: paid absence, departmental administration, fringe benefits, and citywide overhead. With the reduction in available General Fund monies to absorb DPW overhead, the DPW added the paid absence distribution and department administration components to the labor burden. These two components are essentially an internal overhead rate calculated as a percentage of hourly wages. A description of each of these cost items and the current percentage applied for each is shown below:

- **Wages:** Actual hourly pay rate of employees charging time to projects.
- **Paid Absence:** Includes vacation, holidays, compensatory time, executive leave, sick leave, funeral leave, and jury duty. The current rate is 25 percent of direct wages.
- **Department Administration:** Overhead for the DPW's administrative staff time not charged directly to projects. The current rate applied is 14 percent of direct wages.
- **Fringe Benefits:** Includes retirement, medical, dental, Unemployment Insurance, life insurance, and counseling services. The current rate is 26 percent of wages plus paid leave distribution and department administration.
- **Citywide Overhead:** Recovers administrative costs that the General Fund has incurred for the benefit of other funds such as capital funds. The Finance Department determines department rates annually. The current rate applied is 35 percent of wages plus paid leave distribution and department administration.

Using these percentages, the DPW calculates the total labor burden added to wages in the following manner.

Sample Calculation

Sample Wage for Hypothetical Employee =	\$100/hour	
Add: Paid Absence Distribution (25%) of \$100 =	25	
Department Administration (14%) of \$100 =	<u>14</u>	
Subtotal		\$139
Add: Fringe Benefits (26%) of \$139 =	36	
Add: Citywide Overhead (35%) OF \$139 =	<u>49</u>	
Subtotal		<u>85</u>
TOTAL		<u>\$224/hour</u>

In the above sample calculation the labor burden is 124 percent of wages (\$224-\$100=\$124/\$100=124%). As a result, the total charge (wages + labor burden) for the hypothetical employee shown above earning \$100 per hour is \$224 per hour.

Rationale For The Current Capital Budgeting Process

As cited earlier, the City Council annually appropriates a budget for each capital project. The annual budget may be for one or more capital project phases. These appropriations pay for construction costs as well as the DPW's staff and internal overhead costs, other departments' staff costs, and the required contribution to Citywide overhead generated through DPW activities associated with planning, designing, and inspecting capital projects. The City's FMS and the DPW's PAC II cost accounting systems account for these costs. If a capital project cost exceeds its annual appropriation, City policy requires the DPW to request that the City Council provide additional funds for the project.

Accountability and budgetary control are the primary reasons for maintaining a detailed accounting for all costs attributable to a capital project and for appropriating funds to specific capital projects. The detailed accounting of capital project costs purports to ensure a complete

accounting of all costs associated with constructing a capital project so that the "true cost" of a capital project is known. The "true cost" being not only the cost of land and construction, but also the cost of staff time to plan, design, and inspect the capital project and all appropriate overhead costs associated with this work. For accountability purposes, all of these costs are recorded separately and reported in the City's accounting records.

The capital project level appropriation methodology purports to provide budgetary control by establishing a budgetary limit on the costs that can be incurred on a specific capital project in any one fiscal year. This budgetary control, if properly adhered to, provides the City Council with assurance that the budgetary limits it imposes through the appropriation process are not exceeded unless appropriate procedures are followed to increase those limits.

The Capital Project Accounting And Budgeting Process Does Not Provide The Purported Level Of Accountability And Budgetary Control

Although increased accountability and budgetary control are desirable capital project objectives, our review found that the current capital project accounting and budgeting system does not provide the level of accountability and budgetary control that is purported. Specifically, our review identified a number of improper project time reporting and project accounting practices which negate the intended benefits of accountability and budgetary control. Moreover, these practices are time consuming and provide little value toward accomplishing the City's Capital Program goals and objectives. Specifically, our review identified the following practices:

- The DPW staff time charged to individual capital projects does not accurately reflect the amount of DPW staff time actually spent;
- Project accounting records are adjusted to avoid exceeding capital project budgets;
- Funds from other appropriations are used to pay for capital projects which have exceeded their budget; and
- Unbudgeted operating expenses are charged to capital projects.

The DPW Staff Time Charged To Individual Capital Projects Does Not Accurately Reflect The Amount Of DPW Staff Time Actually Spent

Our review found that the DPW's capital project cost accounting and associated time reporting cannot be relied upon to accurately reflect the amount of staff time actually spent working on capital projects. Specifically, we found the following problems with the reporting of staff time spent on capital projects:

- All capitably funded DPW staff time must be charged to a capital project or projects;
- DPW staff work on one capital project but charge their time to other capital projects to avoid exceeding the capital project budget for the capital project actually worked; and
- An excessive number of DPW staff charge their time against selected capital projects.

All Capitably Funded DPW Staff Time Must Be Charged To A Capital Project Or Projects

Our review found that capitably-funded DPW staff working on capital projects must charge all of their time to a capital project or projects. DPW staff have multiple capital project numbers against which they can charge their time. Thus, even when DPW staff are not working on a capital project, they must charge their time to one or more of these capital project numbers. Even in the most productive environment, it is not possible for every employee to be 100 percent productive. In fact, according to a DPW division manager, private engineering firms estimate that 65 to 75 percent of their staff time is actually spent on and is chargeable to specific capital projects. Private engineering firms charge the remaining 25 to 35 percent of staff time to overhead.

Charging all DPW staff time, both productive and nonproductive, to capital projects results in unreliable capital project cost information and ultimately increases the overall cost of capital projects. Additionally, this practice distorts capital project cost information, making it

unreliable as a tool for estimating future capital project costs and for evaluating the overall productivity of staff. Furthermore, this practice makes cost comparisons with the private sector problematic. Such comparability will be necessary if the City's new public-private competition policy is to be extended to the DPW.

According to the Deputy Director of Public Works, the current capital staff project time charging practice is the result of the decrease in General Fund support and increase in capital funds support for DPW staff. Prior to this funding shift, the General Fund covered work not directly related to a capital project. Only DPW staff time actually spent working on capital projects was charged to capital funds. Now, because capital funds support a high percentage of DPW staff costs, all DPW staff that work on capital projects must charge all of their time to a capital project or projects. According to the Deputy Director of Public Works, these staff time charges have had the effect of increasing the overall cost of capital projects.

Besides charging all capially-funded staff to capital projects, several other related factors have also increased the cost of capital projects. Namely, the DPW needed to develop an internal overhead rate that would distribute management and administration costs to capital projects. The General Fund previously covered these costs. In addition, the economic slump of the early 1990s reduced both the dollars available for capital projects and the number of capital projects against which DPW staff could charge their time. Consequently, the DPW had fewer capital projects against which to charge its costs and DPW's costs per capital project increased.

This increase in the cost of capital projects has had a more profound effect on smaller capital projects such as parks. Our analysis of capital projects revealed that as total capital project costs rise, E&I costs expressed as a percentage of construction decline. Conversely, as total capital project costs decline, E&I costs expressed as a percentage of construction costs rise. In addition, overall capital cost increases impact parks capital projects in particular. This is because parks capital funds are relatively smaller than other capital funds and are therefore less able to absorb capital cost increases.

DPW Staff Work On One Capital Project But Charge Their Time To Other Capital Projects

Our review also found evidence that DPW staff does not always accurately charge their time to capital projects to avoid exceeding capital project appropriations. Specifically, our review found that staff worked on certain capital projects but charged their time to certain other capital projects that had unexpended or encumbered appropriations. DPW staff charged their time to the capital projects with available funds even though they did not actually work on them. Our review of capital project files found evidence to support these practices. For instance, the project file for a parks capital project contained a number of references to improper DPW charging practices. In May 1993, the project manager determined that 1) unauthorized DPW staff were charging the capital project and 2) authorized DPW staff were overcharging the capital project. The project manager requested that charges be reduced and reassigned to other projects as appropriate. The project manager further reported the purpose being “to assure that we bring charges back into line for the people authorized to work on the project and we preserve funding to pay for future inspection costs.” At a later date, the project manager notified all DPW staff working on the capital project to charge minimally to the capital project or not at all.

On another parks capital project, funding was nearly depleted and sufficient funds were not available to pay for a processed change order and another change order under negotiation. Accordingly, the project manager directed DPW staff working on the capital project to charge minimally or not at all. Prior to this memorandum, the section manager questioned the project manager on why so many people were charging the project.

Excessive Charges To Projects

As indicated in the above examples, DPW staff will continue working on certain capital projects but charge their time to other capital projects that have available funds. In fact, we identified several capital projects which seemed to bear excessive DPW staff charges. For example, 150 different DPW employees charged time to a road widening project for as long as

the project was active. In another example, 92 DPW employees charged time to the first phase of a sewer project and 100 employees charged time to the second phase. In addition, a capital project in our audit sample was left open for over two years after it was completed. DPW staff continued to charge time to this completed capital project during the entire two year period after it was completed.

The DPW Adjusts Accounting Records To Avoid Exceeding Project Appropriations

In addition to DPW time reporting problems, our review found that the DPW adjusts the cost of capital projects to avoid exceeding project appropriations. Specifically, we identified instances in which the DPW exceeded the capital project appropriation and then transferred some costs to another capital project in order to stay within budget. For example, in an airport capital project file, we found a memorandum which noted that the budget was exceeded by \$20,000. In the memorandum, the Airport Section Manager notes the following:

- 1) There will be an attempt to reverse some charges into another project so the budget is not exceeded this fiscal year;
- 2) cannot suggest alternative projects to charge yet and needs to know where the project is overbudget in order to do so; and
- 3) will then suggest a project to move charges to.

On another parks capital project, the DPW exceeded its appropriation and transferred costs to other capital projects to stay within the budget. Specifically, in January 1994, from the problem capital project, the DPW transferred about \$16,000 to two other capital projects to avoid exceeding the original capital project's appropriation.

On yet another parks capital project, the City Council authorized three separate budget appropriations: master planning, plans and specifications, and renovation. The DPW exceeded

the appropriation for the renovation. In attempting to correct this problem, the DPW transferred \$1,100 from master planning and \$5,200 from plans and specifications, to the appropriation for renovation. Then, when the DPW again exceeded the appropriation for the renovation, it transferred \$2,900 in costs to another parks capital project.

On still another parks capital project, the DPW incurred higher than anticipated design costs and did not have sufficient funds available to pay for staff costs to inspect the capital project. Instead of obtaining approval for additional funding, the DPW charged about \$4,300 to the capital project to inspect the construction work from June 1992 through January 1993, and then transferred these costs to another capital project. Moreover, in February 1993, the DPW continued to inspect construction work but did not charge any costs associated with inspection to this capital project.

The DPW Uses Funds From Other Appropriations To Pay For Capital Projects Which Have Exceeded Their Budget

Our review also found that the DPW uses funds from other appropriations to pay for capital projects that have exceeded their appropriation. On a Redevelopment Agency capital project, the DPW approved 16 change orders totaling \$378,320, or 32 percent of the original contract award amount. Because sufficient funds were not available in the capital project budget to pay for all of the change orders, the DPW charged several of them to other available Redevelopment Agency appropriations. For instance, the DPW charged a change order for nearly \$34,000 and another one for \$17,000 to another appropriation.

On a park building renovation project, the DPW exceeded its design budget. To correct this problem, the DPW transferred \$4,800 in staff costs to another capital project. In addition, when budgeted funds for this renovation were nearly depleted and two change orders were pending the DPW used funds from another capital project appropriation to pay for one of the change orders. The events leading to this change order were as follows:

1. Neighborhood Services requested that the capital project include work on the existing kiln room too late in the final design phase for this work to be included in the bid.
2. The project manager sent a memorandum to Neighborhood Services stating that this work was therefore outside the original scope of the project and would have to be designed and bid as a separate capital project.
3. During the construction phase, the project manager changed his mind and proposed that the kiln room work be handled as a change order after all.
4. The amount of the proposed change order was \$7,100.
5. After the DPW prepared the change order memorandum, the project manager received notification from the division analyst that any change order over \$5,620 would take the cumulative change order total over 10 percent of the original construction contract amount and would necessitate a report to the City Council.
6. As a result, the division manager deleted the kiln room work from the change order.
7. Then, without rebidding the work, the DPW issued a purchase order for the kiln room change order work and charged it to the Parks Minor Building Renovation Fund.

For another project in our sample the City Council awarded a contract totaling \$53,047. Change orders on this project were \$12,021, or 23 percent, of the original contract amount. In the same year, the Director of Public Works awarded a different contract totaling \$7,600 for a related capital project. Change orders on this capital project were \$4,600, or 61 percent, of the original contract amount. The DPW charged both of these change orders totaling \$16,621 to the \$7,600 project but did not forward the change orders to the City Council for approval.

The DPW's moving around of capital project costs undermines accountability and budgetary control, wastes staff time, and provides little value to the City in achieving its Capital Program goals and objectives. Our review found that DPW staff spend a significant amount of time researching the FMS to find capital projects that have funding available to transfer costs.

Specifically, DPW staff perform several levels of inquiry in the FMS. The highest level of inquiry determines fund and appropriation balance availability. A second level of inquiry is by capital project within the appropriation. Finally, DPW staff determine the detail codes against which DPW staff have charged time. As a result, DPW staff told us they must spend time holding meetings, composing memoradums and making accounting adjustments.

According to department administration, the DPW's adjusting of charges is in part a response to the inflexibility of the current capital budgeting system to deal with problems that are frequently encountered with capital projects. For example, unanticipated design costs may result from having to redo designs to accommodate the wishes of the user or the public to produce a better overall capital project. However, to complete the design, DPW staff either have to stop working on the capital project or continue working on the capital project and adjust costs to stay within budget.

The DPW's adjusting of capital project costs also results from a combining of construction costs with the DPW's costs in the amount appropriated for a capital project. On some capital projects, higher than anticipated DPW E&I costs may reduce the actual dollars available for construction or contingencies. When that happens, the DPW is again faced with either stopping the capital project or transferring costs to other capital projects.

The DPW Charges Unbudgeted Operating Expenses To Capital Projects

Our review found that the DPW charges unbudgeted operating expenses to capital projects. Costs for mileage, travel, supplies, postage, and duplicating are clearly appropriate items to charge directly to capital projects. However, our review found that the DPW directly charges a number of other operating expenses to projects such as computer hardware, software, required license agreements, equipment repair and maintenance, and training.

In 1993, the City increased the threshold for the capitalization of Fixed Assets to \$5,000. As a result, the City now classifies computer hardware and software purchases up to the \$5,000

limit as "supplies" in the FMS. Before the City raised the threshold, computer equipment was (1) an operating budget amount the City Council approved under each department's Equipment appropriation category, and (2) charged in the FMS as Capital Outlay.

Prior to the threshold increase for the capitalization of Fixed Assets the General Fund was experiencing a downturn in revenues. In 1991, the City Council requested that departments "make do" with existing equipment and request nothing in the Equipment appropriation. Our review revealed that, as General Fund revenues diminished, the DPW has relied on available capital funds to pay for new and upgraded computer systems. Specifically, our review of computer purchases from 1992-93 through 1995-96 revealed the following:

- The DPW charged over \$800,000 in computer purchases to capital projects;
- These purchased computer items were not "project-specific";
- The DPW spread same-date invoiced computer purchases among several capital projects; and
- The DPW made most of these computer purchases either early in the fiscal year when funding was available or late in the fiscal year when certain capital projects had funds remaining.

Specifically, DPW computer hardware and software purchases from 1992-93 through 1995-96 were as follows:

Fiscal Year	Amount
1992-93	\$47,000
1993-94	\$288,000
1994-95	\$220,000
1995-96	\$193,000
Total	\$748,000

Our review also revealed about \$75,000 in additional computer purchases that the DPW categorized as "other Non-Personal" expenses in 1992-93, 1993-94, and 1994-95. The DPW spread the cost of these \$75,000 in computer purchases to multiple capital projects.

DPW Professional Development And Training

According to the City's Capital Budget document, there are several uses of capital monies that are non-construction expenditures common to more than one program. One such use of funds is:

Public Works Professional Development and Training: This project is designed to provide all employees in Public Works with the knowledge and skills necessary for the proper implementation of the Capital Improvement Program.

Our review of capital budget documents showed that, as of 1993-94, three capital sources were designated to fund Public Works Professional Development and Training. These are Fund 465: Construction Excise Tax Fund; Fund 540: Sanitary Sewer Service and Use Charge Fund; and Fund 413: Storm Drainage Fee Fund. In 1991-92, 1992-93, and 1993-94, capital budget

amounts for Public Works Professional Development and Training were \$177,000, \$179,000, and \$187,000, respectively. Prior to 1993-94, additional revenues from Fund 515: Consolidated Water Utility Fund were also available for this purpose¹.

In addition to the above amounts budgeted for Public Works Professional Development and Training, our review revealed that the DPW also charged training, dues, and subscriptions to individual capital projects. Specifically, we reviewed records of inactive projects in the DPW's PAC II to determine the amount spent in the above categories. Capital projects described as "inactive" in PAC II are those that are closed and no longer available to accept charges in either the DPW's system or the City's FMS. For the years 1991-92 through 1993-94, at least \$28,000 in additional professional development and training was charged to individual capital projects.

In regards to the charging of computers and training expenses to capital projects, our review found that the City has no clear policy governing the appropriateness of these charges. Thus, the City should develop a policy regarding the appropriate uses of capital funds to pay for these as well as other operating expenses. Furthermore, even if appropriate, charging these expense items to capital projects allows the DPW to secure these items without obtaining the City Council's authorization through the budget process. By including these expenses in capital projects, the DPW essentially has significant amounts of available discretionary funds.

It should be noted that both state and federal laws govern the receipt and use of certain revenues, such as developer fees and grant monies. In addition, City ordinances prescribe specific uses for other types of revenue the City receives. Our review did not reveal that these revenue sources were used inappropriately.

¹The San Jose Municipal Water System was a DPW division before the City Administration moved it to the Environmental Services Department (ESD). An additional \$10,000 annually from this funding source was estimated and budgeted for Public Works Professional Development and Training.

#1 We recommend the Department of Public Works define appropriate charges/uses of capital funds and establish procedures to ensure that charges are appropriate.
(Priority 3)

As described above, our review identified numerous problems with the current accounting and budgeting system for capital projects. These problems have the following effects:

- Negates accountability and budgetary control;
- Time spent researching and transferring project costs is non-value added;
- Capital project cost information is unreliable;
- The City Council is not given a clear picture of how capital funds are used; and
- The system does not provide adequate flexibility to deal with problems that can occur on projects.

The City Should Consider Modifying How It Budgets For The DPW's Costs

In our opinion, a different budgeting method could improve accountability and budgetary control over capital projects and reduce the amount of time the DPW spends on non-value added activities. Instead of budgeting the DPW's costs for each capital project, at the beginning of the fiscal year, the DPW's budgeted operating costs would be taken off the top from the various funds which pay for the City's capital program. This budgeting technique known as "budget-off-the-top" would work as described below.

The difference between the current budgeting method and budget-off-the-top is the manner in which the DPW's operating costs are budgeted. The current method combines the DPW's costs with construction costs on a capital project by capital project basis. On the other hand, budget-off-the-top extracts the DPW's budgeted staff costs leaving the construction budget with only the cost of construction, contract services, land, and contingency. For project

management and for asset valuation purposes, the DPW would still need to report and account for their staff time spent on capital projects; however, budgetary control for these costs would be at the fund level instead of at the capital project level. The DPW Deputy Director provided a hypothetical example to illustrate the difference between the current budget method and the budget-off-the-top method. The example is shown in Table III.

TABLE III

CURRENT BUDGETING METHOD VS. BUDGET-OFF-THE-TOP

Category	Current Budget Method	Budget-Off-The-Top Method
Department of Public Works E&I Costs	\$0	\$1,500,000
Capital Budget	\$10,000,000	\$8,500,000
Project 1		
E&I	\$ 200,000	-0-
Construction	1,000,000	\$1,000,000
Contingency	250,000	250,000
Total	\$1,450,000	\$1,250,000
Project 2		
E&I	\$ 900,000	-0-
Construction	5,000,000	\$5,000,000
Contingency	500,000	500,000
Total	\$6,400,000	\$5,500,000
Project 3		
E&I	\$ 400,000	-0-
Construction	1,500,000	\$1,500,000
Contingency	250,000	250,000
Total	\$2,150,000	\$1,750,000
Grand Total	\$10,000,000	\$10,000,000

In our opinion, the budget-off-the-top method provides a number of improvements over the existing budgeting system. Specifically, budget-off-the-top would:

- provide a clearer picture of how the City's capital funds are used;
- provide more accurate cost reporting for capital projects;
- segregate the cost to actually construct a capital project from the DPW's costs; and
- allow more flexibility for DPW staff to complete capital projects.

Provide A Clearer Picture Of How The City's Capital Funds Are Used

The capital budget does not provide a clear picture of the amount of money that each capital fund contributes to pay for the DPW's as well as other departments' operating costs. Currently, the capital budget presents the amount budgeted for construction and pre-construction for each project. This budgeted amount is intended to pay for contractor billings as well as DPW staff charges. Furthermore, in the capital project appropriations, the DPW's portion of the appropriation is not segregated from contractor costs. Moreover, the total amount each fund contributes toward the DPW's costs is not shown.

Budgeting-off-the-top would provide a clearer picture of the DPW's overall costs and the amount that each fund contributes to pay for these costs. Specifically, budgeting-off-the-top would show the amount that each fund is contributing to the DPW's costs. Using the budget-off-the-top concept, budget information could be presented in the following manner as shown in Table IV.

TABLE IV
ILLUSTRATIVE DISPLAY OF CAPITAL FUND SOURCES
AND USES UNDER BUDGET-OFF-THE-TOP

CITY USES

CAPITAL FUND TYPES	TOTAL SOURCES OF CAPITAL FUNDS	Manager	Equality Assurance	Finance	Information Systems	General Services	Public Works	Streets and Traffic	Environmental Services	Planning, Building, Code Enforcement	Conventions, Arts & Entertainment	Parks, Recreation & Neigh. Services	Airport	TOTAL CITY USES	AVAILABLE FOR CONSTRUCTION
Airport Funds	\$48,066,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$3,744,577	\$239,544	\$0	\$3,897	\$0	\$0	\$43,787	\$4,104,153	\$43,981,847
Communications Funds	\$1,456,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$17,645	\$239,544	\$44,902	\$3,897	\$9,759	\$17,716	\$43,787	\$449,598	\$1,006,402
Developer Assisted Projects	\$7,976,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$398,264	\$239,544	\$44,902	\$3,897	\$9,759	\$17,716	\$43,787	\$830,217	\$7,145,783
Fire Funds	\$2,972,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$92,868	\$239,544	\$0	\$3,897	\$0	\$0	\$43,787	\$452,444	\$2,519,556
Library Funds	\$8,425,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$0	\$0	\$0	\$3,897	\$9,759	\$0	\$0	\$86,004	\$8,338,996
Municipal Improvements Funds	\$14,809,416	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$764,181	\$239,544	\$44,902	\$3,897	\$9,759	\$17,716	\$43,787	\$1,196,134	\$13,613,282
Off-Street Parking Fund	\$1,469,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$65,005	\$239,544	\$0	\$3,897	\$9,759	\$0	\$0	\$390,553	\$1,078,447
Parks Funds	\$31,602,300	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$2,574,271	\$0	\$0	\$3,897	\$9,759	\$17,716	\$0	\$2,677,991	\$28,824,309
Sanitary Sewer Funds	\$55,142,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$2,589,537	\$239,544	\$44,902	\$3,897	\$0	\$0	\$43,787	\$2,994,015	\$52,147,985
Service Yards Funds	\$9,483,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$220,288	\$239,544	\$44,902	\$3,897	\$0	\$0	\$0	\$580,979	\$8,902,021
Storm Drainage Funds	\$6,620,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$1,854,407	\$239,544	\$44,902	\$3,897	\$0	\$0	\$0	\$2,215,098	\$4,404,902
Traffic Funds	\$53,165,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$5,887,222	\$239,544	\$0	\$3,897	\$9,759	\$0	\$43,787	\$6,256,557	\$46,908,443
Water Pollution Control Funds	\$98,061,100	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$0	\$0	\$44,902	\$3,897	\$0	\$0	\$0	\$121,147	\$97,939,953
Water Utility System Funds	\$2,417,000	\$27,023	\$2,402	\$7,822	\$12,643	\$22,458	\$0	\$0	\$44,902	\$3,897	\$0	\$0	\$0	\$121,147	\$2,295,853
TOTALS	\$341,563,816	\$378,322	\$33,628	\$109,508	\$177,002	\$314,412	\$18,208,265	\$2,395,440	\$359,216	\$54,558	\$68,313	\$70,064	\$306,509	\$22,476,037	\$319,087,779

Source: Auditor-generated model for illustrative purposes.

Table IV is a hypothetical representation of an alternate method to budget for DPW and other City departments supported by capital funds. To develop this table we:

- used actual sources and uses of capital funds from a ‘budget-off-the-top’ workplan the DPW prepared in 1994-95,
- assumed an equal level of support from all capital fund sources for six departments, namely, the City Manager; Office of Equality Assurance; Finance; Information Systems; General Services; and Planning, Building, and Code Enforcement, and
- assumed an equal level of support from only those capital fund sources specific to program uses in the remaining departments, namely, Streets and Traffic; Environmental Services; Convention, Arts, and Entertainment; Parks, Recreation, and Neighborhood Services; and Airport.

In our opinion, the above presentation would facilitate the City Council's scrutiny of the DPW's and other departments' budgets that various capital funds support. The current budget process buries these costs in the individual capital project appropriations and does not allow the level of review that budget-off-the-top facilitates.

Provide More Accurate Cost Reporting

Although DPW staff would still need to charge their time to capital projects, budgetary control of these costs would not be at the individual capital project level, but at the fund level. As a result, staff could charge actual time spent to complete the capital project and not be concerned with staying within the individual capital project appropriation. Therefore, the DPW would no longer need to shift staff costs or charge other capital projects. Consequently, capital project costs would be charged and accounted for more accurately. A benefit of more accurate cost information is that the DPW could use this information to assist it in estimating the cost of future capital projects. As a result, the DPW's cost estimating should improve. Another benefit is that more accurate capital project cost information would facilitate cost comparisons with

private industry for similar type capital projects. Currently, any such comparisons are not meaningful.

Segregates The Cost To Actually Construct A Capital Project From The DPW's Costs

With budgeting-off-the-top, the DPW's cost would be taken off the top and the remaining amount could then be restricted to construction, contractual services, and land acquisition. Segregating these costs would have several advantages. For example, the amount available for construction would be clearly known. The current budgeting system can create false expectations, especially for the City Council, that all of the funds budgeted for a capital project will be spent on construction, when in fact the DPW's costs significantly reduce the actual amount available for construction. This is especially true for small park projects which have to absorb a disproportionately large share of the DPW's costs in relation to the total cost of the capital project. Segregating the DPW's costs from construction costs would also avoid the problem of higher than planned DPW costs reducing the dollars available for construction. Under budget-off-the-top the DPW's costs would be absorbed at the fund level as a whole instead of the individual capital project level. This too would benefit smaller capital projects which are especially impacted when actual DPW staff costs exceed planned costs. Segregating the DPW's costs from construction costs should also eliminate the problems associated with charging unbudgeted expenses, such as computers and training, to capital projects.² These types of expenses would be included in the DPW's costs coming off the top and would not be buried in specific capital project costs.

² See page 25 for a discussion of this issue.

Allow More Flexibility For DPW Staff To Complete Capital Projects

Budget-off-the-top would also facilitate DPW staff in properly planning, designing, and building capital projects according to specifications. Currently, when DPW staff encounter problems which require more DPW staff time than budgeted, the DPW has to either stop work on the capital project or somehow manipulate capital project charges to stay within budget.

However, under budget-off-the-top DPW staff would be able to continue working on capital projects and still charge their time correctly. This flexibility should do away with non-value added activities such as researching and adjusting capital project costs to stay within budgets.

The DPW has had discussions with the Budget Office regarding the budget-off-the-top concept. Initial discussions began in 1994 and several meetings have been held since then. According to the Budget Office, any new method would have to be phased-in and would have to commence at the beginning of a fiscal year.

#2 We recommend the Department of Public Works, in conjunction with the Budget Office, develop and propose to the City Council an alternate method, such as the "budget-off-the-top" approach, to budget and account for DPW costs charged to capital projects. (Priority 3)

Other Jurisdictions Have Reported Similar Problems

Our review also found that several other jurisdictions have recently modified or are considering modifying their budgeting for staff associated with capital projects. For example, the City of Phoenix recently changed how its Engineering and Architectural Services Department (EAS) charges for its services. The EAS participated in a pilot program and proposed changes to improve customer satisfaction with charge-out rates and service levels. One goal for the EAS was to lessen the impact of staff costs for services related to capital projects, particularly the smaller projects. The objectives of the pilot program were to:

- shift the calculation of the rates from the Finance Department to the service departments;
- charge customers based on services provided rather than total hours charged;
- incorporate the rate setting process into the budget process; and
- improve customer feedback.

In addition, a citizen Ad Hoc Committee on Design and Construction recommended that the City evaluate alternative billing methodologies for EAS services. Moreover, the Budget and Research Department reviewed the EAS program budget. The Comprehensive Program Budget Review (CPBR) report to the City Council stated that:

- the majority of the problems between EAS and client departments were caused by the work order system;
- there is a need to pursue alternative funding arrangements, such as flat fees; and
- smaller projects are overly burdened by EAS charges.

As a result of the pilot program, the City of Phoenix has shifted the calculation of the rates from the Finance Department to the service departments. The basis for the rate is hourly rate plus additions for employee benefits and citywide overhead. The EAS is now accepting responsibility for calculating its own rates. As a result, the EAS is:

- developing an understanding of the costs associated with the rates;
- communicating the new rates to their client departments via individual meetings;
- directed to publish a status report annually, comparing EAS costs to EAS revenues; and
- planning to compare the EAS calculated hourly rate to comparable hourly rates in the public and private sectors.

In addition, Phoenix now charges customers based on the services provided. In previous years the EAS charged cost-based hourly rates for all services. Beginning in July 1996, the EAS switched from a costing to a pricing methodology and now charges fixed fees for their services. Specifically, the EAS has developed a sliding rate scale based on the engineer's original estimate

of project construction cost. The EAS has developed a fee schedule to charge customer departments for the following services:

- project management;
- preparing bid specifications;
- contract administration;
- record management;
- utility coordination;
- labor compliance; and
- environmental programs.

The EAS' rate schedule is shown in Table V.

TABLE V

**CITY OF PHOENIX, ARIZONA
ENGINEERING AND ARCHITECTURAL SERVICES FEE SCHEDULE
FOR 1996-97 AND 1997-98**

<i>Project Management</i>			
If the project is > \$100,000 use (A); otherwise use (B)			
(A) (tiered like an income tax table)			
	Percent	Over	Plus Fixed Amount
< = \$500,000	8.00%	\$0	\$0
\$500,001 - \$3M	6.00%	\$500,000	\$40,000
> \$3 million	2.50%	\$3,000,000	\$190,000
<i>(maximum fee of \$615,000 - or - \$20 million of construction costs)</i>			
(B)			
< = \$30,000		2.00% (flat fee)	
\$30,001 - \$50,000		5.00% (flat fee)	
\$50,001 - \$100,000		7.00% (flat fee)	

Further, Phoenix has incorporated the rate setting process into the budget process. The CIP budget is the most important one for EAS customers. As a result of the pilot program:

- EAS customers will be able to calculate the fees in the planning stages of their projects and be able to budget for them accordingly and
- A fee waiver process will be established - client departments may receive approval from the Deputy City Manager and Budget and Research Department for the waiver of fees.

Finally, Phoenix plans to obtain customer feedback through an annual internal service customer survey.

Our review found that other local government entities budget for capital projects in the same manner as the City of San Jose. In general, these jurisdictions have experienced a number of the same problems we identified in this report. The City of Berkeley is considering changing its budgeting system to a budget-off-the-top concept. Similarly, an official from the Dublin-San Ramon Services District stated that it is considering modifying how it accounts for capital projects and is considering a "pooled concept" for budgeting its staff costs for capital projects.

CONCLUSION

Our review found that the capital project accounting and budgeting process does not provide the purported level of accountability and budgetary control. Specifically, we found the following problems:

- The DPW staff time charged to individual capital projects does not accurately reflect the amount of DPW staff time actually spent;
- The DPW adjusts capital project accounting records to avoid exceeding capital project budgets;
- The DPW uses funds from other appropriations to pay for capital projects which have exceeded their budget; and
- The DPW charges unbudgeted operating expenses to capital projects.

In our opinion, a different budgeting method could improve accountability and budgetary control of capital projects and reduce the amount of time the DPW spends on non-value added activities. Specifically, if the budget-off-the-top technique was used to fund the DPW's cost of working on capital projects, it should:

- Provide a clearer picture of how the City's capital funds are used;
- Provide more accurate cost reporting for capital projects;
- Segregate the cost to actually construct a capital project from the DPW's costs; and
- Allow more flexibility for DPW staff to complete capital projects.

RECOMMENDATIONS

We recommend the Department of Public Works should:

Recommendation #1:

Define appropriate charges/uses of capital funds and establish procedures to ensure that charges are appropriate. (Priority 3)

Furthermore, the Department of Public Works should:

Recommendation #2:

In conjunction with the Budget Office, develop and propose to the City Council an alternate method, such as the "budget-off-the-top" approach, to budget and account for DPW costs charged to capital projects. (Priority 3)

FINDING II

THE DEPARTMENT OF PUBLIC WORKS NEEDS TO IMPROVE ITS PROCEDURES FOR CONTROLLING ENGINEERING AND INSPECTION COSTS

The Department of Public Works (DPW) provides architectural and engineering services to support the City's Capital Improvement Program. The DPW's operating budget is approximately \$25 million, of which approximately \$18 million (70 percent) is capially funded. These costs should be adequately controlled to ensure that the City makes the most effective use of its capital monies and that DPW staff is used efficiently and effectively. Although the DPW has established a number of capital project management controls, our review identified some internal control weaknesses which limit the DPW's ability to plan, monitor, and control its Engineering and Inspection Costs (E&I costs). Specifically, we found that (1) the Project Management Procedures Manual does not adequately address procedures for controlling E&I costs charged to projects; (2) the DPW's estimates for E&I costs are not sufficiently detailed; (3) the DPW's cost reporting needs to be improved; and (4) the DPW's project cost monitoring is reactive instead of proactive.

Need To Manage Engineering And Inspection Costs

The DPW provides architectural and engineering services to support the City's Capital Improvement Program. The department's operating budget is approximately \$25 million, of which approximately \$18 million (70 percent) is capially funded. These costs should be adequately controlled to ensure that the City makes the most effective use of its capital monies and that DPW staff is used efficiently and effectively.

When establishing cost control procedures for a major public works project, the construction budget will take priority, but effective cost control procedures for the planning, design, inspection, and all associated overhead costs must also be established to ensure that the total capital project is completed in accordance with the approved budget. Construction costs are

controlled through established procedures, with the objective of constructing the capital project within budget. Because the design, administration, and overhead costs represent a significant portion of the overall budget on large construction projects, strict and effective procedures also need to be developed and applied to control these costs. These procedures should include:

- checklists for planning the project;
- a list of steps to be completed;
- staff needed to complete the project;
- budget hours and costs by project phase;
- project schedules;
- project cost reports;
- monitoring progress and costs against the schedule and budget;
- exception reports; and
- revisions to project schedules and budgets.

In his book, Construction Cost Engineering Handbook, Anghel Patrascu, C.C.E, notes that engineering costs are sometimes overlooked but need to be controlled to ensure the efficient allocation of manpower. Specifically, Patrascu states,

The day-to-day cost and manhour control of design and other engineering and support services does not always get the attention it deserves, and sometimes it does not get any attention at all. The prime responsibility for this function rests with the project manager, function managers, and lead discipline personnel. For some large projects it deserves the services of a full-time cost engineer.

Patrascu also identifies methods for controlling engineering costs and progress. These methods follow:

- prepare a Work Breakdown Structure (WBS) for all engineering and support services;
- every individual charging hours to the job must do so only to an authorized element of the WBS;

- when a work element on the WBS is satisfactorily completed, that element shall be closed out;
- disciplines may charge only to an element that has an open status;
- to ensure that lead engineers and managers have an up-to-date status of the WBS element under their control, the cost engineer will issue a monthly report; and
- lead engineers will review the status of each WBS element under their control to identify possible variances.

According to Patrascu, "*Adequate and timely control and forecast of work, manhours, and status will assist in the efficient allocation of manpower.*"

Patrascu also cites the need to control indirect costs as well. Specifically, he states,

The above discussion covers only the control of direct manhours. Indirect manhours may, however, amount to a considerable percentage of the direct manhours. On some large projects it may be 50 to 60 % of the direct manhours. Indirects must be controlled in the same way . . .

Harold Kerzner, Ph.D., in his book entitled Project Management: A Systems Approach

To Planning, Scheduling and Controlling, notes similar requirements for an effective control system. Specifically, Kerzner states,

An effective control system monitors schedule and performance as well as costs by setting budgets, measuring expenditures against budgets and identifying variances, assuring that the expenditures are proper, and taking corrective action when required.

According to Kerzner, the requirements of an effective control system for both cost and schedule include:

- Thorough planning of the work to be performed;
- Good estimating of time, labor and costs;
- Clear communication of scope and required tasks;
- Disciplined budget and authorization of expenditures;
- Timely accounting of physical progress and cost to complete remaining work; and

- Frequent periodic comparison of actual progress and expenditures to schedules and budgets during the project life and at project completion.

Project Management Controls

Our review found that the DPW has established a number of capital project management controls including the following key controls:

- policies and procedures;
- project cost reports; and
- monitoring of schedules and costs.

Policies And Procedures

Our review found that in March 1993, the DPW developed its Project Management Procedures Manual ". . . *to provide clear guidance for the management of projects, meeting the laws and codes governing the Public Works Capital program.*" The procedures establish the minimum coordination, review, and documentation the DPW requires. The procedures in the manual include the requirements for all divisions regarding project estimates, design reviews, major and minor contracts, and contract change orders. The DPW further states that ". . . *this is a living manual, and existing procedures will be periodically revised, deleted, and new procedures added as needs arise.*" The DPW wrote this manual specifically for the Project Manager, but all DPW personnel involved with capital projects should refer to it.

Project Cost Reporting

Prior to July 1996, the DPW used two project cost reporting systems, the City's Financial Management System (FMS) and the DPW's PAC II.

The FMS

The FMS provides budgetary control for capital projects. Each capital project is assigned a separate appropriation number with a specific City Council approved budget amount. The budgetary appropriation is entered into the FMS to account for costs on a capital project basis. The City encumbers the cost of the construction contract and any subsequent change orders when approved. Other charges, such as the DPW's staff time, supplies, and overhead, as well as staff time from other departments and citywide overhead are accumulated for each capital project. DPW staff labor hours accrue to capital projects in the FMS on a biweekly basis.

DPW's PAC II

In 1985, after an in-house evaluation, the DPW purchased the PAC II software to assist in planning and monitoring capital projects' schedules and costs. Installation began and was scheduled to take place in two phases. Phase I consisted of three components--the first component being capital project scheduling. Phase II was to develop a methodology for determining relative priorities and the final component was the initial identification of cost monitoring elements. Phase II, which has yet to be fully implemented, was supposed to finalize cost monitoring, project prioritization, and resource (manpower) planning.

The PAC II system collects direct labor costs and other costs such as fringe benefits, citywide overhead, departmental overhead, consultant cost, and supplies by capital project phases. Each capital project phase is subtotaled and the grand total is the cost of all phases of the capital project. Unlike the FMS, that accumulates multiple departments' charges to capital funds, PAC II is an internal DPW system that captures only the DPW's costs associated with the capital projects.

Monitoring Of Schedules And Costs

The DPW produces a monthly monitoring report which compares original target dates, revised target dates, and actual completion dates on key project milestones. DPW uses the report to monitor the progress of capital projects and the DPW also uses it at monthly coordination meetings with other city departments.

The DPW has also established a process for monitoring costs charged to capital projects. Specifically, analysts periodically review the FMS cost reports to ensure that capital projects stay within the approved budget.

Project Management Controls Need To Be Improved

Although the DPW has established a number of capital project management controls, our review identified some number of internal control weaknesses which limit the DPW's ability to plan, monitor, and control its E&I costs. Specifically, we found that (1) the Project Management Procedures Manual does not adequately address procedures for controlling E&I costs charged to capital projects; (2) the DPW's estimates for E&I costs are not sufficiently detailed; (3) the DPW's cost reporting needs to be improved; and (4) the DPW's project cost monitoring is reactive instead of proactive.

The Project Management Procedures Manual Does Not Adequately Address Procedures For Controlling E&I Costs

We reviewed the Project Management Procedures Manual and found most of the written procedures address contract administration rather than E&I costs. Specifically, the DPW has not established written procedures for planning, monitoring, and controlling engineering and inspection activities charged to capital projects. For instance, the DPW's manual does not include such items as a project checklist for planning all the steps of a capital project, and detailed procedures for estimating and monitoring E&I costs throughout the life of a capital

project. As a result, project management techniques regarding cost control vary by project manager.

According to a Deputy Director, the DPW has nothing in writing but costs are always reviewed, particularly E&I costs charged to capital projects. Furthermore, as stated above, the Project Management Procedures Manual was intended to be a living document and new procedures would be added as needs arise.

Engineering Estimates Are Not Sufficiently Detailed

The DPW has developed a written procedure for estimating E&I costs. Procedure No.103, in the Project Management Procedures Manual, instructs project managers in estimating DPW's costs for engineering and design as well as department and citywide overhead costs. The cost estimates are percentage-based and become more exact (plus or minus) as the capital project nears the construction phase.

Although the DPW has established a procedure for estimating E&I costs, this procedure does not ensure an adequate basis for accurately forecasting and monitoring E&I costs throughout the life of a capital project. As mentioned earlier, Patrascu notes that the first step in effectively controlling engineering costs is to prepare a work breakdown structure (WBS) for engineering and support services as well as overhead. According to Patrascu, the WBS should include manhours and costs at various levels such as an overall summary, by the engineering disciplines required, by types of drawings, and by milestones. Such a level of detail provides the basis for accurately forecasting and monitoring the progress and costs of engineering services and resultant overhead costs.

Our review, however, found that the DPW's estimates for E&I costs are not as sufficiently detailed as recommended. For instance, our review of the DPW's capital project files found that its E&I cost estimates lack detail such as the various engineering classifications needed to work on the project, the required manhours and their respective costs, and associated overhead. In

most cases, the only documentation of the estimate was the Budget Worksheet # 4 which usually contains only an overall estimate of E&I costs. Without such a detailed estimate, the DPW lacks an adequate basis for accurately forecasting and monitoring E&I costs throughout the life of the project. Conversely we noted that consultants provide the City with a detailed breakdown of their work structure when they submit estimates to work on capital projects.

In the DPW's defense, the estimate for E&I costs is sometimes based on the amount budgeted, which is not always within its control. In some cases, the operating departments submit budget estimates for capital projects without obtaining input from the DPW. Furthermore, in some cases, only a certain amount of money is available for E&I costs and the DPW has to work within the budget constraints. However, the capital budgeting process is also part of the problem. Because the DPW can transfer costs or charge time to other capital projects, there is less incentive for the DPW to prepare estimates that are accurate and up-to-date. Moreover, if the budget estimates are not adequate, the DPW can try to obtain additional monies for the next fiscal year.

#3 We recommend that the Department of Public Works develop and implement project management procedures for planning, monitoring, and controlling its staff costs and overhead costs charged to capital projects. These procedures should include some or all of the following:

- checklists for planning the project;
- a list of steps to be completed;
- a realistic estimate of the staff costs needed to complete the project;
- budget hours and costs by project phase;
- project schedules;
- project cost reports;
- monitoring progress and costs against the schedule and budget;
- exception reports; and
- revisions to project schedules and budgets.

(Priority 3)

Cost Reporting Systems Need To Be Improved

In the past, project managers have used the City's FMS and DPW's PAC II system to monitor the cost of capital projects. Charges to capital projects are collected in both these systems. However, our review identified a number of problems with these cost monitoring systems. Specifically, (1) reports are not timely; (2) input errors are numerous and take weeks to be corrected; (3) adjustments and corrections to charges mask the true cost of capital projects; (4) charges in the FMS and PAC II do not agree; (5) neither system links project costs and project schedules; and (6) the total cost of capital projects is difficult to determine.

Reports Are Not Timely

The DPW relies on information in the FMS to produce the monthly PAC II report that project managers use to monitor capital project costs. The FMS cannot be reconciled for up to two weeks after a biweekly period ends. Project managers finally receive their PAC II report six to eight weeks after the end of the biweekly period. As a result, the FMS and PAC II do not provide timely information for project managers to monitor costs.

Input Errors

The DPW's manual timesheet system allowed all time charges (valid or invalid) to be entered into the FMS. The valid charges were recorded to capital projects while the invalid charges accumulated in one of several General Fund holding accounts. During any given pay period, a percentage of entries 1) were erroneous due to data input errors, 2) used invalid charge codes, 3) exceeded appropriations, or 4) were processed incorrectly. When the DPW identified that an unauthorized charge had occurred, it moved the costs to an appropriate charge code. There was always a time lag between recording the charges in the holding accounts and the manual removal. Therefore, a constant holding account balance appeared in the DPW General Fund total.

Adjustments

Both cost reporting systems allow costs to accrue to appropriated budget amounts and be adjusted or "backed out" after the fact. While the DPW correctly reverses inappropriate charges in PAC II, the DPW may also reverse appropriate charges as well. As a result, the true total cost of the DPW's charges to capital projects is obscured. For example, we found one capital project where the DPW had "backed out" \$225,000 in charges from a capital project phase in PAC II when the project became inactive in the FMS. As a result, PAC II recorded the cost of that particular capital project phase as a negative \$140,000.

The FMS And PAC II Do Not Agree

Total charges to capital projects in the FMS and PAC II do not agree. This is partially due to other City departmental charges accruing to capital projects in the FMS besides DPW charges. However, the DPW uses information in the FMS to compare to PAC II reports and transfer charges between capital projects in PAC II, as necessary, to match the appropriation amount in the FMS as closely as possible.

No Link Between Project Schedule/Project Cost

According to DPW Administration, it has endeavored for many years to link capital project schedules, manpower requirements, and costs by capital project phase. However, neither the FMS nor PAC II provides the capability to link these elements. This linkage is necessary to establish a benchmark to effectively monitor costs and schedules by capital project phase and throughout the capital project.

Total Cost Of Projects Is Not Easily Obtainable

Major capital improvements are often multi-year projects planned in one year, designed in another, and constructed over one or more additional years. The FMS is a fiscal year accounting system. At the beginning of each fiscal year charges to capital project appropriations roll back to zero. Consequently, the total charges to a capital project cannot be easily determined. Capital project cost information in the FMS is contained in multiple datasets. Therefore, to determine total capital project costs, each year's dataset must be accessed. In addition, within each year's dataset, several activity codes are used to account for staff time charged to work on capital projects. All of these activities must be totaled in order to arrive at the total annual cost. Likewise, PAC II records do not present a clear picture of total capital project costs. When capital projects become inactive, total costs are shown, however, PAC II reports show only "current year" and "prior year" costs. For example, when a capital project has been active for six

years, PAC II reports do not specifically break out the first four years. As a result, it is unclear when adjustments to capital project charges occurred and why.

Automated Timecard System

The manually prepared timesheets the DPW formerly submitted to Payroll allowed all time charges (valid or invalid) to be entered into the FMS. As discussed above, the valid charges were recorded to capital projects while the invalid charges accumulated in one of several General Fund holding accounts. During any given pay period, a percentage of entries were erroneous and there was always a time lag between recording the charges in the holding accounts and the manual removal. Therefore, a constant holding account balance appeared in the DPW General Fund total.

The DPW has taken significant steps to improve its cost reporting. In July 1996, all DPW divisions, except the Materials Testing Lab in the Engineering Services Division, implemented an Automated Timecard System (ATS). The ATS is an on-line, real-time computerized timesheet that DPW personnel use to enter the number of hours worked on capital project assignments in the biweekly pay period. The purpose of going on-line with time reporting was to reduce the number of timekeeping errors mentioned above that resulted from the manual system. In addition, the computerized timesheets give the DPW the ability to capture total personnel charges to capital projects. Project managers can access staff labor cost information on almost a "real time" basis at the end of every biweekly time reporting period. Furthermore, the ATS can produce monthly and year-end summary reports to track DPW staff costs. The DPW recently began producing these types of cost reports to track charges to capital projects.

Cost Monitoring Is Reactive Instead Of Proactive

According to Kerzner, a proactive monitoring system (1) provides management and staff associated with a project with feedback on how the project cost and schedule is progressing; (2) identifies deviations from the current program, schedule, or budget; and (3) provides the

opportunity to initiate contingency planning early enough so that cost performance and time requirements can undergo corrective action without loss of resources.

According to Kerzner, effective monitoring requires the following:

- the project plan, schedule and budget prepared during the planning phase;
- a detailed comparison between resources expended to date and those predetermined. This includes an estimate of the work remaining and the impact on activity completion; and
- a projection of resources to be expended out through program completion.

Our review found that DPW's monitoring of E&I costs charged to projects is reactive instead of proactive. As mentioned earlier, the DPW monitors project schedules on a regular basis. Also, a Deputy Director of Public Works noted that costs, including E&I costs, are always reviewed. However, the DPW has not established formal cost monitoring systems such as those cited above. Specifically, the DPW does not routinely establish detailed E&I budgets by capital project phase, regularly compare capital project phase budgets against actual costs, and, if necessary, adjust E&I budgets to reflect the remaining work to be done. Instead, the DPW cost monitoring of E&I charges involves comparing budgets to cost reports. When capital project budgets are exceeded, the DPW routinely "backs out" charges and transfers them to another capital project. Alternatively, DPW staff stop charging their time to capital projects they are actually working on and charge their time to other capital projects with unexpended budget appropriations.

#4 We recommend the Department of Public Works continue developing a cost reporting system that can be used to integrate project schedules and costs for the purposes of comparing project plans and budgets versus actual performance.

(Priority 3)

CONCLUSION

The Department of Public Works (DPW) provides architectural and engineering services to support the City's Capital Improvement Program. The DPW's operating budget is approximately \$25 million, of which approximately \$18 million (70 percent) is capially funded. These costs should be adequately controlled to ensure that the City makes the most effective use of its capital monies and that DPW staff is used efficiently and effectively. Although the DPW has established a number of capital project management controls, our review identified some internal control weaknesses which limit the DPW's ability to plan, monitor, and control its E&I costs. Specifically, we found that (1) the Project Management Procedures Manual does not adequately address procedures for controlling E&I costs charged to capital projects; (2) the DPW's estimates for E&I costs are not sufficiently detailed; (3) the DPW's cost reporting needs to be improved; and (4) the DPW's project cost monitoring is reactive instead of proactive.

RECOMMENDATIONS

To correct these internal control weaknesses, the DPW should implement the following recommendations:

Recommendation #3:

Develop and implement project management procedures for planning, monitoring, and controlling its staff costs and overhead costs charged to capital projects. These procedures should include some or all of the following:

- checklists for planning the project;
- a list of steps to be completed;
- a realistic estimate of the staff costs needed to complete the project;
- budget hours and costs by project phase;
- project schedules;
- project cost reports;
- monitoring progress and costs against the schedule and budget;
- exception reports; and
- revisions to project schedules and budgets. (Priority 3)

Recommendation #4:

Continue developing a cost reporting system that can be used to integrate project schedules and costs for the purposes of comparing project plans and budgets versus actual performance. (Priority 3)

FINDING III

THE CITY COUNCIL DOES NOT RECEIVE SUFFICIENT INFORMATION REGARDING CAPITAL PROJECT COSTS

The City Council has oversight responsibility for the City's capital program. This responsibility includes: authorizing capital projects, reviewing and approving budgets, monitoring the capital program to ensure that capital projects are completed in accordance with approved plans and budgets, and accepting the completed capital project. To be effective, the City Council needs reliable and complete information on the status and cost of capital projects. Accordingly, the City has developed policies and procedures to inform the City Council on the status and cost of capital projects. Likewise, the DPW's internal directives contain policies and procedures that require the submitting of reports to the City Council on the status and cost of capital projects. In order to comply with City and DPW policies and procedures, the City Council should receive these reports:

- Capital Budget Reports;
- Report on Bids Memorandum;
- Notice of Completion and Acceptance of Public Works Contract; and
- Unfunded projects status report.

Although policies and procedures are in place, our review found that reporting to the City Council should be improved. Specifically, our review found the following:

- The Capital Budget Reports inform the City Council of capital project schedules only, as such, information on DPW staff costs charged to date to capital projects is not available for City Council review;
- The DPW's Report on Bids memoranda to the City Council do not provide an accurate estimate of all DPW staff costs charged to capital projects;
- The City Council never receives a complete accounting of total capital project costs at the time the capital project is accepted;

- The DPW has not used the Unfunded Projects appropriation as the Finance Committee intended; and
- The DPW does not report on a quarterly basis to the Finance Committee the status of unfunded capital projects.

As a result of these practices, the information the City Council does receive on the status and cost of capital projects is neither reliable nor accurate and impairs the City Council's ability to effectively oversee the City's Capital Improvement Program.

Capital Budget Reports

The Manager's Budget Office prepares Mid-Year and Year-End Capital Budget reports. These reports focus on capital project schedules, not on capital project costs. In addition, capital project status reporting is "by exception only" - that is, not all capital projects worked on during the period are included in the reports. Moreover, DPW charges to capital projects and total expenditures to date for each capital project are not presented. In our opinion, these reports should continue to discuss the status of capital project schedules. However, the addition of capital project-specific cost information, including DPW staff charges to capital projects, would improve the City Council's ability to effectively oversee the City's capital improvement program.

Prior to 1995, the Budget Office prepared a Quarterly Capital Monitoring report in addition to the Mid-Year and Year-End Capital Budget reports. The Budget Office developed the original quarterly report format, then the DPW took over report production and presentation. The last DPW-produced Quarterly Capital Projects' Status Report presented to the Finance Committee was dated October 1993. The Budget Office subsequently re-assumed responsibility for the quarterly report but the City Council Finance Committee directed the Budget Office to stop producing the quarterly report. As a result, quarterly information is no longer provided. The Mid-Year and Year-End reports continue to present capital project status information. In our opinion, however, reporting out additional information regarding capital project costs would enhance the City Council's oversight of the Capital Improvement Program.

#5 We recommend the Department of Public Works provide the Budget Office with capital project-specific cost information, including the cost of DPW staff, for inclusion in the Mid-Year and Year-End Capital Budget Reports. (Priority 3)

Report On Bids Memorandum

When a capital project is ready to be constructed, the DPW prepares a "Report on Bids" memorandum which breaks down the estimated costs for construction, DPW (E&I) costs, and a contingency amount. In addition, the memorandum includes a cost estimate for consultant services or land acquisition, even though these costs may have been previously appropriated and paid. The E&I estimate on the memorandum purports to be the total cost of DPW staff to plan, design, and inspect a capital project from inception to completion. Specifically, the DPW's cost estimating guidelines state that staff costs should be 25 to 35 percent of the construction award amount. However, our comparison of the DPW's estimated staff costs on the Report on Bids Memorandum with actual DPW labor costs accrued in the FMS revealed discrepancies.

**Comparison Of DPW Costs In The Reports
On Bids Memorandum To Actual DPW Costs In The FMS**

We reviewed the cost of DPW labor charged to capital projects in the FMS and compared it to the budgeted amount reported on the Report on Bids Memorandum to Council. Specifically, we entered the visible code for twenty of the projects in our sample into the FMS and totaled the personal services charges accruing to those capital projects for as long as they were active. Table VI shows the results of our review.

TABLE VI

**COMPARISON OF DPW COST IN REPORTS ON BIDS MEMORANDA
TO ACTUAL DPW COSTS IN THE FMS
FOR TWENTY SAMPLED CAPITAL PROJECTS**

Capital Project	Construction Award	DPW E&I Cost Estimate From Reports On Bids Memoranda	Estimated E&I As A Percentage Of Construction	DPW Labor Cost* per FMS	DPW Labor Cost* Per FMS As A Percentage Of Construction	Percentage Change E&I Cost Estimate to Actual
South 1st Street Improvements	\$ 1,182,490	\$ 236,500	20%	\$ 365,153	31%	+54%
60" Interceptor Phase IIA	2,366,773	200,000	8%	589,373	25%	+195%
Dry Creek Sanitary Sewer Rehabilitation	850,268	155,000	18%	147,362	17%	-5%
Coleman Road Widening	495,832	125,000	25%	376,979	76%	+202%
Eden Ave Storm Drain	322,999	113,000	35%	178,129	55%	+58%
San Pedro Square Banners	6,057	7,500	124%	9,634	159%	+28%
SJIIA Security Access System	1,395,205	125,000	9%	256,420	18%	+105%
Groesbeck Park Phase II	601,660	170,000	28%	199,271	33%	+17%
Montague School Noise/IV	366,914	40,000	11%	100,642	27%	+152%
Montague School II	380,740	76,000	20%	63,371	17%	-17%
Hughes School II Noise Mitigation	190,700	19,000	10%	81,737	43%	+330%
Bramhall Park Phase I	241,960	47,040	19%	39,049	16%	-17%
Camden Teen Drop-In Center	117,284	51,000	43%	75,702	65%	+48%
South 1st St. Tree Installation	109,900	27,475	25%	21,855	20%	-20%
Freeze Damage	69,700	23,000	33%	20,817	30%	-9%
Williams Park Security Lighting	30,891	25,109	81%	25,701	83%	+2%
Roosevelt Community Center Remodel	183,080	61,000	33%	128,174	70%	+110%
Terminal "C" Office Window Modifications	14,516	10,000	69%	20,392	140%	+104%
Monterey Road Improvement - Blossom Hill/Curtner	12,586,793	1,590,000	13%	3,197,446	25%	+101%
Camden Lifetime Activity Center	272,000	54,400	20%	167,512	62%	+208%
TOTALS	21,785,762	\$3,156,024	14%	\$6,064,719	28%	+96%

*Includes labor burden comprised of paid absence, department administration, fringe benefits, and citywide overhead.

As Table VI demonstrates, the DPW's cost estimate of E&I for our twenty sampled capital projects reported out to the City Council on the Reports on Bids Memoranda was approximately \$3.2 million. However, when we totaled all DPW staff costs accrued in the FMS against these capital projects during the time they were active and "chargeable", we found nearly \$6.1 million in DPW personal services costs were charged to these capital projects. Consequently, DPW personal services costs for these twenty capital projects were 96 percent higher than the DPW estimated on the Report on Bids Memoranda. In addition, capital project memoranda showed DPW's labor cost estimates based on a percentage of construction cost ranged from 8 percent to 124 percent of the award amount and totaled from \$1,500 to \$1.2 million. Actual FMS DPW labor charges for these capital projects were \$9,600 to \$3.2 million and ranged from 16 percent to 159 percent of the construction award amount. Moreover, when we compared DPW E&I costs estimated on the memoranda to actual FMS labor charges for these twenty capital projects, we found that DPW estimated labor costs were underestimated on 15 capital projects. Specifically, DPW actual labor charges were from 2 percent to 330 percent higher than estimated on the 15 capital projects' memoranda.

For example,

Montague School Noise/IV Construction Contract Amount = \$366,914
DPW's E&I estimate = \$40,000
Total DPW labor charged per the FMS = \$100,642
Cost increase of \$61,000; DPW labor 152% higher than estimated

Camden Lifetime Activity Center Construction Contract Amount = \$272,000
DPW's E&I estimate = \$54,400
Total DPW labor charged per the FMS = \$167,512
Cost increase of \$113,000; DPW labor 208% higher than estimated

Impact Of DPW Labor Charges On Small Projects

DPW's E&I costs for small capital projects are disproportionately higher than for larger capital projects. Simply stated, as total capital project costs increase, E&I costs expressed as a percentage of construction cost decline. Conversely, as total capital project costs decline, E&I costs as a percentage of construction costs rise. This phenomenon results from the DPW applying the same percentage rate calculation process for small capital projects as it does for larger capital projects. Moreover, small capital projects' costs rise because they incur the same fixed costs as large capital projects. A minor project included in Table VI demonstrates this situation.

As shown in Table VI above, DPW's labor charges for the Terminal "C" Office Window Modifications project exceeded the DPW's E&I cost estimate on the Report on Bids Memorandum. This minor capital project had a construction award amount of about \$14,500. The DPW estimated E&I costs for this capital project at \$10,000, or 69 percent of the construction cost. However, actual DPW labor charges to this capital project were about \$20,400, or 140 percent of the cost of construction and 104 percent higher than the DPW's original E&I estimate.

Our audit revealed that the City Council is not apprised of the total cost of DPW's staff time charged to capital projects. In our opinion, when the City Council approves the construction award amount, the Report on Bids Memorandum should include the capital project's cost to date as well as the estimated cost to complete the capital project.

#6 We recommend the Department of Public Works include all prior and future estimated capital project costs on the Report on Bids Memorandum to the City Council. (Priority 3)

Notice Of Completion And Acceptance Of Public Works Contract

Contractors completing contractual work for the City of San Jose request a Notice of Completion and Acceptance of Public Works Contract (Notice of Acceptance) be filed with the County of Santa Clara Recorder. In accordance with Section 6103 of the Government Code of the State of California, the County of Santa Clara Recorder charges no fee for recordation. DPW's inspectors inspect the work and if satisfied sign the Notice of Acceptance that work was performed in accordance with the contract and the project Plans and Specifications. The contract cost on the Notice of Acceptance is the original contract award amount and may or may not include additional payments for contract change orders.

Our audit revealed that the City Council is not fully apprised of DPW's total costs for capital projects. As a result, the City Council is not informed of total capital project costs. Total capital project cost is comprised of contractor payments according to the Notice of Acceptance and total DPW charges accrued over the life of the capital project. Table VII shows total capital project costs for selected capital projects in our audit sample.

TABLE VII**TOTAL CAPITAL PROJECT COSTS FOR SELECTED CAPITAL PROJECTS**

Capital Project	Total Contract Payments per FMS	**Total DPW Charges per FMS	Total Capital Project Cost per FMS	Notice of Acceptance Amount	Percentage Change Total Capital Project Cost to Notice of Acceptance Amount
South 1st Street Improvements	\$1,748,551	\$408,699	\$2,157,250	\$1,568,370	38%
60" Interceptor Phase IIA	2,741,657	608,565	3,350,222	2,404,664	39%
Coleman Road Widening	524,129	391,027	915,156	495,832	85%
Eden Ave Storm Drain	349,806	187,033	536,839	322,999	66%
San Pedro Square Banners	6,407	9,647	16,054	6,057	165%
SJIIA Security Access Control System	1,559,150	262,786	1,821,936	1,532,807	19%
Montague School II	416,055	83,410	499,465	412,394	21%
Hughes School II Noise Mitigation	190,015	83,942	273,957	188,968	45%
Williams Park Security Lighting	30,891	25,959	56,850	30,891	84%
Roosevelt Community Center Remodel	204,916	131,890	336,806	197,062	71%
Terminal "C" Office Window Modifications	17,335	20,403	37,738	17,332	118%
Camden Lifetime Activity Center	386,615	192,793	579,408	290,615	99%
TOTALS	\$8,175,527	\$2,406,154	\$10,581,681	\$7,467,991	42%

**Total DPW charges per FMS include labor and other departmental charges to capital projects.
 South First Street Improvements – contract payments include consultant services and parking meter fees.
 60" Interceptor Phase IIA – contract payments include consultant agreement.
 Coleman Road Widening – contract payments include consultant, EIR, and street striping.
 SJIIA Security Access Control System – contract payments include consultant services.
 Montague School II – contract payments include consultant services.
 Roosevelt Community Center Remodel – contract payments include consultant services.
 Camden Lifetime Activity Center – contract payments include consultant and equipment and supplies specific to the Center.

As Table VII shows, total capital project costs are significantly higher than the amount recorded on the Notice of Acceptance. Specifically, the total cost of these capital projects was about \$10.6 million, nearly \$3.1 million more than the Notice of Acceptance amounts recorded. In our opinion, the City Council should be apprised of the DPW's total charges for capital projects as well as total capital project costs. Filing the Notice of Acceptance is a legal requirement only; its purpose has never been to report total capital project costs to the City Council. However, in our opinion, the DPW should present additional capital project cost information in conjunction with its report of contract completion and capital project acceptance.

By so doing the DPW would apprise the City Council of the complete cost of a capital project at the time of capital project acceptance.

#7 We recommend the Department of Public Works prepare a final accounting of the total cost of each capital project at project acceptance and report final capital project costs to the City Council. (Priority 3)

Unfunded Capital Projects and Undistributed Costs

In June 1994, the Finance Committee requested that the DPW develop an accounting or tracking process for undistributed capital costs to avoid accruals of such costs to the General Fund. The Committee's primary concern was the issue of undistributed costs in the capital budget related to unfunded projects. Additionally, the Finance Committee requested the Administration to develop a tracking process to periodically reconcile costs in a fashion that provided an "even level of charges." At a September 1994 Finance Committee meeting, the DPW presented a memorandum in response to the Committee's request.

According to the DPW, unfunded capital projects caused DPW staff to charge their time to (1) unrelated, but budgeted capital projects or (2) to the General Fund. In either case, DPW staff had to reallocate staff charges on unfunded capital projects to budgeted capital projects or the General Fund prior to the end of the fiscal year. The DPW made five recommendations to alleviate the impact on the General Fund.

Recommendation #1: *A City-Wide appropriation of \$25,000 should be established in the adopted Public Works budget to cover preliminary work and estimates for unfunded projects;*

Recommendation #2: *Funding should be approved by the City Manager or City Council prior to commencement of work beyond the estimates;*

Recommendation #3: *The Department of Public Works will report quarterly to the Finance Committee on the status of all unfunded projects;*

Recommendation #4: *The Department of Public Works and the Information Systems Department will complete modification of the paid absence distribution system; and*

Recommendation #5: *The Department of Public Works will proceed with the development of an Automated Timecard System to reduce errors at all levels of timecard processing.*

According to the DPW, implementing these recommendations would provide continuous and timely information to the City Council on all unfunded projects. The preliminary funding and timely decisions to provide a specific budget for funding the work would prevent unbudgeted costs from accumulating in the General Fund or being accrued against unrelated capital projects.

The Finance Committee and City Council approved the DPW's memorandum explaining unfunded and undistributed costs and accepted the recommendations. Our review found that Recommendations #2, #4, and #5 have been implemented. Further, regarding Recommendations #1 and #3, our review revealed:

- ◆ The DPW has not used the Unfunded Projects appropriation as the Finance Committee intended;
- ◆ The DPW lacks adequate controls to track the cost for staff to work on unfunded projects;
- ◆ DPW charges for work on unfunded projects continue to accumulate in the General Fund; and
- ◆ The DPW has never reported to the Finance Committee on the status of unfunded projects.

***The DPW Has Not Used The Unfunded Projects Appropriation
As The Finance Committee Intended***

Recommendation #1 in the DPW’s September 1994 memorandum to the Finance Committee was to establish an appropriation in the adopted Public Works budget to cover preliminary work and estimates for unfunded projects. This recommendation has been implemented and subsequently modified. Specifically, at mid-year 1994-95 the City Council appropriated \$25,000 in the Citywide Fund to accrue DPW's staff labor charges for work on unfunded capital projects. The City Council increased the Unfunded Projects appropriation amount in each subsequent year. The City Council increased the appropriation to \$65,000 in 1995-96 and to \$100,000 in 1996-97 and 1997-98.

Our review found that although DPW staff perform work on unfunded projects throughout the year, labor costs have not accrued directly to the Unfunded Projects appropriation during the year. Instead, other DPW General Fund operating budget appropriations accumulate and hold these charges until the City’s Budget Office transfers some of these accumulated charges at mid-year or year-end to the Unfunded Projects appropriation. As a result, DPW costs to work on unfunded projects are not accounted for on an on-going basis throughout the year in the Unfunded Projects appropriation as the Finance Committee intended.

***The DPW Lacks Adequate Controls To Track The Cost
For Staff To Work On Unfunded Projects***

The DPW's Fiscal staff uses an Unfunded Project Log to record DPW labor costs and number of hours charged to unfunded capital projects. Our review revealed that the DPW lacks adequate controls to track the cost for staff to work on unfunded projects. Specifically, we found that the DPW has not charged time to the Unfunded Projects appropriation on a real-time basis. Furthermore, the Unfunded Project Log that the DPW uses identifies only the staff costs for unfunded capital projects that may or may not be charged against the Unfunded Projects appropriation. In our opinion, the DPW should establish adequate controls to monitor the cost for DPW to work on unfunded projects and charge time to the Unfunded Projects appropriation

on a real-time basis to provide assurance the Unfunded Projects appropriation is not exceeded at any time during the fiscal year.

#8 We recommend that the Department of Public Works establish adequate controls to monitor the cost for DPW staff to work on unfunded projects and charge time to the Unfunded Projects appropriation on a real-time basis.

(Priority 3)

Unbudgeted Costs For Unfunded Projects Continue To Accumulate In The General Fund

The DPW's operating budget uses many General Fund reimbursable and non-reimbursable accounts to accrue and hold personal and non-personal services charges until either revenues are received to cover these costs or the City Council approves capital project funding. The DPW's Fiscal staff uses an Unfunded Project Log to record DPW labor costs and number of hours charged to unfunded capital projects. We reviewed the DPW's Unfunded Project Log prepared as of June 25, 1996 for the quarter and year ending June 30, 1996. The log indicated that DPW staff charged about 9,500 hours of staff time costing nearly \$385,000 for work on unfunded projects in 1995-96, or \$320,000 more than the \$65,000 appropriation. As previously stated, the Budget Office transfers DPW staff costs to the Unfunded Projects appropriation only at mid-year and year-end.

DPW Administration informed us that not all of the projects on the Unfunded Project Log they provided us should be categorized as "unfunded" work. Instead, DPW Administration maintains there are actually three categories of unfunded needs and provided the following definitions and descriptions to clarify the types of projects and activities which are "unfunded." The three defined categories are:

1. Reimbursable Projects – The DPW charges for preliminary work performed in support of other agencies, assessment districts, and private developers that will definitely be reimbursed although reimbursement may not be received in the same

fiscal year that the work is performed. Technically speaking, these types of capital projects are not “unfunded projects” as defined in the September 1994 memorandum to the Finance Committee.

2. Unfunded Conceptual/Preliminary Work – General Fund client departments initiate DPW staff time for unfunded conceptual/preliminary work. There is no budgeted capital project against which to charge DPW staff time. There is, however, a high probability that the City Council will approve funds for a capital project against which to charge DPW staff time during the fiscal year. In the event the City Council does not appropriate funds for unfunded conceptual/preliminary work the DPW will charge staff time against its General Fund personal services appropriation.
3. Unfunded Projects – The DPW spends staff time developing capital project ideas that client departments, the City Manager, the City Council, or Council Committees submit. There is little or no probability that the City Council will appropriate a capital project against which the DPW can charge staff time.

In addition to defining the three categories of unfunded needs listed above, DPW

Administration provided a revised Unfunded Project Log for 1995-96. According to the revised log the \$385,000 in 1995-96 year-to-date costs should be categorized as follows:

TABLE VIII

DPW CHARGES TO UNFUNDED PROJECTS IN 1995-96**(AS OF JUNE 25, 1996)**

Types of Unfunded Projects	1995-96 YTD DPW Charges
Reimbursable	\$161,848
Unfunded Conceptual/Preliminary Work	\$169,637
Unfunded	\$52,842
Total	\$384,327

According to the 1995-96 revised Unfunded Project Log, about \$162,000 in DPW charges were for Reimbursable projects. As a result, the DPW maintains that these projects and DPW charges for these projects should not be defined as “unfunded” and were improperly recorded on the log. In our opinion, DPW charges for all types of unfunded projects should be tracked to accurately reflect their impact on all General Fund accounts. In addition, we recommend the DPW define the types of unfunded projects eligible for funding from the Unfunded Projects appropriation and charge DPW labor costs to the appropriation on a real-time basis and include on its Unfunded Project Log the timing and amount of any cost reimbursements.

#9 We recommend the Department of Public Works clearly define the types of unfunded projects eligible for funding from the Unfunded Projects appropriation and modify its Unfunded Project Log to show the timing and amount of any reimbursements. (Priority 3)

***The DPW Has Never Reported Quarterly To The Finance Committee
On The Status Of All Unfunded Projects***

Recommendation #3 required the DPW to report quarterly to the Finance Committee on the status of all unfunded projects. We reviewed Finance Committee agendas for January 1995 through September 1996 and found the DPW never agendized the Report on Unfunded Projects for Committee action or approval. It should be noted that none of the City Council members who now sit on the Finance Committee were on the Committee in 1994 when the DPW's report and recommendations were accepted and approved. In our opinion, to ensure that the City Council is apprised of the status of unfunded capital projects, the DPW should:

- report back to the Finance Committee prior to exceeding the original budget amount appropriated for work on unfunded capital projects, and
- on a quarterly basis, prepare and present a report to the Finance Committee on the status of unfunded capital projects and undistributed costs of DPW's staff working on capital projects.

#10 We recommend the Department of Public Works on a quarterly basis, prepare and present a report to the Finance Committee on the status of unfunded capital projects and undistributed costs of DPW's staff working on capital projects. (Priority 3)

CONCLUSION

The City Council has oversight responsibility for the City's Capital Improvement Program. To monitor the program and ensure that capital projects are completed in accordance with approved plans and budgets, the City Council needs reliable and complete information on the status and cost of capital projects. The City and the DPW have established policies and procedures regarding reports to the City Council. Our review revealed that the City Council:

- does not receive reports that provide reliable, accurate, and complete information on capital projects;
- is unaware of DPW's total staff costs for capital projects;
- is not apprised of total capital project costs when accepting capital projects; and
- is not properly apprised on the status of unfunded capital projects.

In our opinion, to ensure that the City Council receives sufficient information with which to monitor the Capital Improvement Program, the DPW should (1) provide additional information regarding capital project costs for inclusion in the Mid-Year and Year-End Capital Budget Reports; (2) report DPW's staff costs to date on the Report on Bids Memorandum to the City Council; (3) prepare a final accounting of capital project costs when projects are accepted and report to the City Council; (4) establish adequate controls to monitor the cost for DPW staff to work on unfunded projects and charge time to the Unfunded Projects appropriation on a real-time basis; (5) clearly define the types of unfunded projects eligible for funding from the Unfunded Projects appropriation and modify its Unfunded Project Log to show the timing and amount of any cost reimbursements; and (6) prepare and present a quarterly report on unfunded capital projects to the Finance Committee.

RECOMMENDATIONS

The Department of Public Works should:

Recommendation #5:

Provide the Budget Office with capital project-specific cost information, including the cost of DPW staff, for inclusion in the Mid-Year and Year-End Capital Budget Reports. (Priority 3)

Recommendation #6:

Include all prior and future estimated capital project costs on the Report on Bids Memorandum to the City Council. (Priority 3)

Recommendation #7:

Prepare a final accounting of the total cost of each capital project at project acceptance and report final capital project costs to the City Council. (Priority 3)

Recommendation #8:

Establish adequate controls to monitor the cost for DPW staff to work on unfunded projects and charge time to the Unfunded Projects appropriation on a real-time basis. (Priority 3)

Recommendation #9:

Clearly define the types of unfunded projects eligible for funding from the Unfunded Projects appropriation and modify its Unfunded Project Log to show the timing and amount of any cost reimbursements. (Priority 3)

Recommendation #10:

Prepare and present a quarterly report to the Finance Committee on the status of unfunded capital projects and undistributed costs of DPW staff working on capital projects. (Priority 3)